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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,622	10/31/2003	Andrey L. Balmin	ARC920030042US1	3369

7590 05/02/2006

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EXAMINER	
PONIKIEWSKI, TOMASZ	

ART UNIT	PAPER NUMBER
2165	

DATE MAILED: 05/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/698,622	BALMIN ET AL.	
	Examiner	Art Unit	
	Tomasz Ponikiewski	2165	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-64 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-64 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 2/27/2004.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-64 are pending.

Claim Objections

2. Claims 1, 10, 13, 16, 22, 31, 34, 37, 43, 52, 55, and 58 recite the word "for" in the body of the claims. It indicates intended use and as such does not carry patentable weight. The word could be changed to recite "to". The limitations following the phrase "for" describes only intended use but not necessarily required functionality of the claim. Limitations following the phrase "for" do not carry patentable weight, which cause the claims to appear as a series of non-functional descriptive material/data without any functional relation with each other. Applicant is required to amend the claims so that the claim limitations are recited in a definite form.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1, 22, and 43 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1, 22, and 43 do not list any hardware (i.e. computer) tied to the steps in order to operate the steps of the claims therefore resulting in software only implementation

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 13, 34, 55, 20, 41, 62 and 64 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 13, 34 and 55 recite the expression “residual query”. It is unclear to the examiner what this actually is and what it does to the overall invention.

Claims 20, 41 and 62 recites the limitation "the size" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim 20, 41, and 62 recites the limitation "the expression trees" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 64 recites word "for" in line 1. The limitations following the phrase "for" describes only intended use but not necessarily required functionality of the claim. As such it carries no patentable weight.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-64 are rejected under 35 U.S.C. 102(e) as being anticipated by Barton et al. (US PUB 2004/0068487)

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

As per claims 1, 22, and 43 Barton et al. is directed to a computer-implemented method, system and product for querying a structured document, comprising:

identifying auxiliary structures including pre-computed information applicable to accelerate user query processing by detecting containment mappings between query expressions and expressions in the auxiliary structures (page 1, paragraph 0002 lines 6-8; wherein "mappings" could be "elements"; page 1, paragraph 0015, line 4);

and finding the user query result by executing a rewritten query that exploits the pre-computed information for each detected containment mapping (page 1, paragraph 0015, lines 2-4).

As per claim 2, 23, and 44 Barton et al. is directed to comprising implementing the method in a relational database management system (page 6, paragraph 0103, line 2)

As per claim 3, 24, and 45 Barton et al. is directed to the structured document includes a set of nodes described by an expression tree (page 3, paragraph (page 3, paragraph 0040, lines 7-8).

As per claim 4, 25, and 46 Barton et al. is directed to the structured document is an XML document (abstract, line 2).

As per claim 5, 26, and 47 Barton et al. is directed to the auxiliary structures include a number of indexes, a number of partial XML indexes, and a number of materialized views (page 1, paragraph 0002 lines 6-8; wherein "index" could mean "tag"; page 4, paragraph 0076, lines 1-3).

As per claim 6, 27, and 48 Barton et al. is directed to the pre-computed information includes pre-computed XPath results (PXRs) (page 1, paragraph 0012, lines 10-12, wherein "pre-computed Xpath results" could mean "Xpath expressions"; page 1, paragraph 0015, lines 2-4).

As per claim 7, 28, and 49 Barton et al. is directed to the user query processing further comprises navigating path expressions with a query language (page 1, paragraph 0003).

As per claim 8, 29, and 50 Barton et al. is directed to the query language employs Xpath (page 1, paragraph 0012, lines 1-3)

As per claim 9, 30, and 51 Barton et al. is directed to the query language includes at least one of: XQuery, SQL/XML, and XSLT (page 1, paragraph, 0012, lines 2-3).

As per claim 10, 31, and 52 Barton et al. is directed to the detecting further comprises:

selectively executing a set of predetermined sequential rules for traversing a tree of nodes (page 2, paragraph 0019, lines 13-17);

matching node data with the pre-computed information (page 3, paragraph 0057, lines 2-3);

and selecting auxiliary structures that subsume portions of the user query (pages 3-4, paragraph 0058).

As per claim 11, 32, and 53 Barton et al. is directed to the node data includes axis data, test data, predicate data, and next step node data (page 2, paragraph 0019, lines 5-7; page 4, paragraph, 0065, lines 13-23).

As per claim 12, 33, and 54 Barton et al. is directed to comprising normalizing expression trees by moving predicate conditions into filter expressions before the identifying (page 4, paragraph 0076, lines 6-9).

As per claim 13, 34, and 55 Barton et al. is directed to executing the rewritten query further comprises:

constructing a pushdown expression for evaluation with information in the auxiliary structure (page 5, paragraph 0080, lines 4-8);

and constructing a compensation expression for evaluation as a residual query (page 5, paragraph 0080, lines 4-7).

As per claim 14, 35, and 56 Barton et al. is directed to the compensation expression is an XPath predicate (page 1, paragraph 0015, lines 2-4).

As per claim 15, 36, and 57 Barton et al. is directed to comprising building a taxonomy of auxiliary structures (page 3, paragraph 0043, lines 1-3, wherein "taxonomy" could mean "labels").

As per claim 16, 37, and 58 Barton et al. is directed to comprising classifying compensation expressions for the taxonomy according to a predetermined set of values (page 3, paragraph 0043, lines 6-7; wherein "set of values" could mean "set of constraints").

As per claim 17, 38, and 59 Barton et al. is directed to the identifying handles at least one of: nested path expressions, nested predicates, value-based comparison predicates, conjunction, disjunction, all XPath axes, branches, and wild cards (page 3, paragraph 0040, lines 3-5, wherein "branches" or "Xpath axes" could mean "labels").

As per claim 18, 39, and 60 Barton et al. is directed to the XPath axes include child, descendant, self, attribute, parent, and descendant-or-self (page 2, paragraph, 0020, lines 7-11).

As per claim 19, 40, and 61 Barton et al. is directed to comprising creating a mapping directed acyclic graph (DAG) that separately encodes a set of all containment mappings for each node (page 3, paragraph, 0039).

As per claim 20, 41, and 62 Barton et al. is directed to creating the mapping DAG is polynomial in terms of the size of the expression trees (page 6, paragraph 0104).

As per claim 21, 42, and 63 Barton et al. is directed to comprising pruning the mapping DAG to remove invalid node pairs (page 5, paragraph 0090, lines 1-3).

As per claim 64 Barton et al. is directed to a system for querying a structured document, comprising:

means for identifying auxiliary structures including pre-computed information applicable to accelerate user query processing by detecting containment mappings between query expressions and expressions in the auxiliary structures (page 6, paragraph 0108, lines 2-9);

and means for finding the user query result by executing a rewritten query that exploits the pre-computed information for each detected containment mapping (page 1, paragraph 0015, lines 2-4).

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tomasz Ponikiewski whose telephone number is (571)272-1721. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey A. Gaffin can be reached on (571)272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tomasz Ponikiewski
May 1, 2006

SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100